

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A device for coupling a data terminal equipment unit to a data signal carried by wiring in a building that carries a power signal simultaneously with the a data signal, said device comprising:

 a wiring connector for connecting said device to the wiring;

 a data coupler coupled to said wiring connector and having a data signal port operative to pass only a data signal;

 a modem coupled to said data signal port for full duplex data signal communication with the wiring;

 a data interface connector coupled to said modem for connecting to the data terminal equipment unit;

 a power coupler coupled to said wiring connector and having a power signal port operative to pass only the power signal;
and

 a power supply coupled to said power signal port and to said modem to be powered by the power signal from the wiring and for powering said modem.

2. (previously presented) The device according to claim 1, further comprising means for mounting the device on a wall.

3. (previously presented) The device according to claim 1, wherein the device is included in an outlet.

4. (previously presented) The device according to claim 2, wherein the outlet is one of a telephone outlet and a power outlet.

5. (previously presented) The device according to claim 1, wherein the power signal is a direct current signal.

6. (previously presented) The device according to claim 1, wherein the power signal is an alternating current signal.

7. (previously presented) The device according to claim 1, wherein the wiring carrying the power signal is distinct/dedicated wiring.

8. (previously presented) The device according to claim 1, wherein the power and data signals are frequency multiplexed over the wiring, and at least one of said couplers further comprises a filter.

9. (previously presented) The device according to claim 1, wherein the device is addressable.

10. (previously presented) The device according to claim 9, wherein said device has a manually assigned address.

11. (previously presented) The device according to claim 9, wherein said device has an automatically assigned address.

12. (previously presented) The device according to claim 9, wherein said device has an address by the data terminal equipment unit coupled to the device.

13.(previously presented) The device according to claim 1, wherein at least one of said couplers comprises a center tap transformer.

14.(previously presented) The device according to claim 1, wherein at least part of the device is housed within an enclosure of the data terminal equipment unit.

15.(previously presented) The device according to claim 1, wherein the data signal includes a digitized telephony signal.

16.(previously presented) The device according to claim 1, further connectable to a telephone unit.

17.(previously presented) The device according to claim 1, further comprising a power connector coupled to said power signal port for powering a power consuming apparatus connected thereto.

18.(previously presented) A device for configuring a local area network in a building for the transport of power and data signals across a wiring, wherein the wiring includes at least first and second wiring segments, the device comprising:

first and second ports each connected to a respective one of said first and second wiring segments;

first and second data couplers each coupled to a respective one of said first and second ports, and each having a data signal port operative to pass only a data signal;

first and second modems each coupled to said data signal port of a respective one of said first and second data couplers, for full duplex data signal communication with a respective one of said first and second wiring segments;

at least one data interface connector coupled to at least one of said modems and operative for establishing a data signal connection with a data terminal equipment unit;

first and second power couplers each coupled to a respective one of said first and second ports, and each having a respective one of first and second power signal ports, each signal port being operative to pass only the power signal;

a power supply coupled to the first power signal port and to at least one of said modems to be powered by the power signal and for powering said modem; and

means for allowing the communication of a data signal over the first wiring segment to be independent of the communication of a data signal over the second wiring segment,

wherein the second power signal port is coupled to the first power signal port.

19. (previously presented) The device according to claim 18, further comprising a power connector connectable to a power source for receiving power from the power source, the power connector being coupled to at least one power signal.

20. (previously presented) The device according to claim 18, further comprising means for mounting the device on a wall.

21. (previously presented) The device according to claim 18, wherein the device is included in an outlet.

22. (previously presented) The device according to claim 21, wherein the outlet is one of telephone outlet and a power outlet.

23.(previously presented) The device according to claim 18, wherein at least one of the power signals is a direct current signal.

24.(previously presented) The device according to claim 18, wherein at least one of the power signals is an alternating current signal.

25.(previously presented) The device according to claim 18, wherein at least one of the power signals is carried over a respective wiring segment using distinct/dedicated wiring.

26.(previously presented) The device according to claim 18, wherein power and data signals are carried frequency multiplexed over at least one of the wiring segments, and at least one of said couplers further comprises a filter.

27.(previously presented) The device according to claim 18, wherein the device is addressable.

28.(previously presented) The device according to claim 27, wherein said device has a manually assigned address.

29.(previously presented) The device according to claim 27, wherein said device has an automatically assigned address.

30.(previously presented) The device according to claim 27, wherein said device has an address assigned by a data terminal equipment unit connected to the device.

31.(previously presented) The device according to claim 18, wherein at least one of said couplers comprises a center tap transformer.

32.(previously presented) The device according to claim 18, wherein at least part of the device is housed within an enclosure of the data terminal equipment unit.

33.(previously presented) The device according to claim 18, wherein at least one of the data signals includes a digitized telephony signal.

34.(previously presented) The device according to claim 18, wherein said device is connectable to a telephone unit.

35.(previously presented) The device according to claim 18, further comprising a power connector connectable to a power source for receiving power from the power source, the power connector being coupled to at least one power signal.

36.(previously presented) A network for carrying data and power signals, said network comprising:

first, second and third nodes, each of said nodes containing at least one power consuming circuit;

first and second wiring segments in a building, each of said segments comprising at least two conductors, said first wiring segment coupling said first and second nodes to form a first bi-directional communication link and said second wiring segment coupling said first and third nodes to form a second bi-directional communication link,
wherein:

at least one of said wiring segments simultaneously carries both data and power signals;

said first communication link carries data independent of said second communication link;

each of said nodes is connectable to a data terminal equipment unit for coupling the data terminal equipment unit to at least one of said communication links;

at least a first one of said nodes is connectable to a power source for coupling the power source to said at least one power signal over a wiring segment connected to said first one of said nodes; and

at least a second one of said nodes is powered by a power signal carried over a wiring segment connected to said second one of said nodes.

37.(previously presented) The network according to claim 36, wherein at least one of the nodes is included in an outlet.

38.(previously presented) The network according to claim 37, wherein at least one of the nodes is included in one out of telephone outlet and powerline outlet.

39.(previously presented) The network according to claim 36, wherein at least one of said wiring segments is composed of wiring previously installed in the building.

40.(previously presented) The network according to claim 36, wherein at least one of the wiring segments is one of: telephone wiring; and power wiring.

41.(previously presented) The network according to claim 36, wherein the power signal is carried over at least one of said wiring segments using distinct/dedicated wiring.

42.(previously presented) The network according to claim 36, wherein the power and data signals are carried frequency multiplexed over at least one of said wiring segments.

43.(previously presented) The network according to claim 36, wherein at least one of said nodes is addressable.

44.(previously presented) The network according to claim 43, wherein said at least one of said nodes has a manually assigned address.

45.(previously presented) The network according to claim 43, wherein said at least one of said nodes has an automatically assigned address.

46.(currently amended) The ~~device~~network according to claim 43, wherein said at least one of said nodes has an address assigned by a data terminal equipment unit connected to said at least one of said nodes.

47.(previously presented) The network according to claim 36, wherein at least one of the nodes is housed within the enclosure of a data terminal equipment unit.

48.(previously presented) The network according to claim 36, wherein at least one of said communication links carries a digitized telephony signal.

49.(previously presented) The network according to claim 36, wherein at least one of said nodes is further connectable to a telephone unit.

50.(previously presented) The network according to claim 36, further comprising a power connector coupled to receive a power signal carried by said network for powering said at least one power consuming circuit contained in one of said nodes.

51.(currently amended) The ~~device~~network according to claim 36, wherein the power signal is a direct current signal.

52.(new) A control network in a building for wired coupling an analog device to a data unit and comprising at least three nodes interconnected by at least two distinct wiring segments, the network comprising:

first, second and third nodes;

first and second wiring segments, each wiring segment comprising at least two conductors; wherein

each of said wiring segments connects exactly two of said nodes in a point-to-point connection,

said two of said nodes effect full-duplex communication of serial digital data over said wiring segment connected between said two of said nodes,

at least one of said nodes is connectable to a data unit for coupling the serial digital data carried over at least one of said wiring segments to the data unit,

at least one of said nodes is connectable to the analog device for coupling the serial digital data carried over at least one of said wiring segments to the analog device,

the analog device is a sensor or an actuator,
and each of said nodes is addressable in said
network.

53.(new) The network according to claim 52, wherein at least one of said wiring segments comprises one of: a twisted wire pair; a coaxial cable; telephone wiring; and powerline wiring.

54.(new) The network according to claim 52, wherein the serial digital data is packet-based.

55.(new) The network according to claim 52, wherein at least one of said nodes is wall mounted and at least one of said wiring segments is inside a wall of the building.

56.(new) The network according to claim 52, wherein at least one of said nodes is housed within an outlet in the building.

57.(new) The network according to claim 52, wherein at least one of said wiring segments concurrently carries a Direct Current (DC) power signal, and wherein at least one of said nodes is at least in part powered by the power signal.

58.(new) The network according to claim 52 further comprising a third wiring segment, wherein each of said nodes is connected to exactly two other nodes to form a ring topology.

59.(new) The network according to claim 58, wherein said nodes are operative to reroute the serial digital data in the event of failure of one of said wiring segments.

60.(new) The network according to claim 52, wherein each of said nodes has a manually assigned address.

61.(new) The network according to claim 52, wherein each of said nodes has an automatically assigned address.

62.(new) The network according to claim 52, wherein each of said nodes has an address assigned by a data unit connected to said node.

63.(new) The network according to claim 52, wherein at least one of said nodes is operative to power a device connected thereto.

64.(new) The network according to claim 63, further operative for connecting and disconnecting power to a connected device based on data in the serial digital data carried over a wiring segment connected to the node.

65.(new) The network according to claim 63, further operative for measuring the power to a connected device and transmitting data representing the measured power as part of the serial digital data carried over a wiring segment connected to said one of said nodes.

66.(new) The network according to claim 52, wherein a first one of said nodes is connectable to a sensor and a second one of said nodes is connectable to an actuator, and wherein operation of the actuator is dependent upon the sensor output.

67.(new) The network according to claim 52, wherein at least one of said nodes is operative to repeat at least part of the

serial digital data received from one wiring segment connected to said at least one node to the other wiring segment connected to said at least one node.

68.(new) A device for configuring a network for coupling a digital data signal to an analog sensor or actuator, for use with first and second wiring segments in a building, each wiring segment having at least two conductors, the device comprising:

- a first connector for connecting to a first wiring segment;

- a first modem including a transmitter and a receiver coupled to said first connector for serial full-duplex communication of a digital data signal with an identical modem over the first wiring segment;

- a second connector for connecting to the second wiring segment;

- a second modem including a transmitter and a receiver coupled to said second connector for serial full-duplex communication of a digital data signal with an identical modem over the second wiring segment;

- a controller comprising a processor and firmware coupled to said first and second modems and an interface coupled to said controller and connectable to the analog sensor or actuator, for coupling the digital data signal carried over said first wiring segment to the analog sensor or actuator; and

- a single enclosure housing said first and second modems, said controller and said interface;

wherein said device is addressable.

69.(new) The device according to claim 68, wherein each of the wiring segments is one of: a twisted wire pair; a coaxial cable; telephone wiring; and powerline wiring.

70.(new) The device according to claim 68, wherein the serial digital data is packet-based.

71.(new) The device according to claim 68, wherein said device is wall-mountable.

72.(new) The device according to claim 68, wherein said device is housed within an outlet.

73.(new) The device according to claim 68, further comprising a power supply coupled to said first and second modems for powering said modems, said power supply being coupled to said first connector for being powered by DC power carried over said first wiring segment.

74.(new) The device according to claim 68, wherein said device has a manually assigned.

75.(new) The device according to claim 68, wherein said device has an automatically assigned.

76.(new) The device according to claim 68, wherein said device has an address assigned by a data unit connected to said device.

77.(new) The device according to claim 68, further operative to power a second device connected thereto.

78.(new) The device according to claim 77, further operative for connecting and disconnecting power to the second device based on data carried by one of the digital data signals.

79.(new) The device according to claim 77, further operative for measuring the power to the second device and transmitting data representing the measured power together with one of the serial digital data signals.

80.(new) The device according to claim 68, wherein said device is wall mountable.

81.(new) The device according to claim 68, wherein said device is further operative to repeat at least part of the serial digital data received from the first wiring segment to the second wiring segment.